

## Integrated Pest Management and Preserving Exhibit Items

**P**est Management is defined in different ways by many different professions. In the broadest sense, Integrated Pest Management is primarily an agricultural intervention technique to reduce cost and increase profit. However, lately it has become a concept within the museum community and appears to have taken a rather simple concept and turned it into a rather cumbersome addition to the workload. This perception may have some basis in fact, but the purpose of this article is to elucidate how far a little thought on IPM can go toward the preservation of our collections on exhibit. Pest Management programs can be as simple or as complex as time permits at the site, but the three basic elements of exclusion, identification, and monitoring within an exhibit context will add to the overall preservation program.

In agriculture, pest management typically involves the use of predatory species to exclude the pest species from a specific area. Within the museum context, our specific area is the exhibit and our exclusion device is tight seals instead of predatory insects. The obvious really does not need to be stated, but the protection afforded by tight seals on the cases is heightened by each level of exclusion created. A useful strategy to create for your exhibit area is to use a line of inductive reasoning starting with an evaluation of the artifact itself and determine the effectiveness of this first protective layer. It is from this point that the zones of exclusion will be created.

All situations will be different and obviously a historic house will differ markedly from a formal exhibit area. Historic items within the house context will not typically be exhibited with cases. Therefore, the first zone of protection will be the room itself and then the perimeter of the house. Insect-sensitive objects are going to be more at risk than objects in cases. That is always going to be true and with that in consideration, the seals on the building take on considerable importance to the collection housed inside. Common sense will guide you here: doors without sweeps, open windows without screens are obvious. Less apparent will be unsealed old pipes running into the structure or cracks or spaces leading to the outdoor world.

The above discussion applies equally to the typical exhibit situation. In fact, we may be a little

more lax in the analysis of the exhibit environment due to the perceived security assumed by the protection of the display case. One specific example illustrates this point dramatically. Insect collections, for example, are frequently housed in specially designed insect drawers supposedly resistant to intrusion. I have seen several drawers with specimens totally destroyed by Dermestids and ask how this could have been averted. It is very important to analyze your particular situation from the inside to the outside and then take the action with the most impact. Perhaps the addition of a seal on the drawers, cabinets, doors, or windows could have prevented this damage. In this case, an additional seal on the drawer might have prevented the damage.

The second element of the pest management thinking for the exhibit area is identification of the suspected museum pests. As stewards of cultural resources, we often feel frustrated by the seemingly endless parade of insects invading our exhibit areas. At first glance, it appears to be an insurmountable task to identify each species and our inclination is to panic and assume that the collections are in imminent danger. Frequently, this is not going to be the case. Structures, no matter how well sealed, will not keep out all insects! However, it is important to remember that the vast majority of insects are not destructive to museum objects and pest species are, in fact, very finite in numbers confined to specific families within an order. In the museum field, very few of us are also accomplished entomologists. It is, however, relatively easy to familiarize oneself with the major pests that affect collections.

Members of the Family Dermestidae comprise the vast majority of the museum pest species and are relatively easy to identify on the basis of morphology. Species in the Family of Lyctidae (Powder Post) are a little more challenging, but not difficult when the suspected Lyctid is evaluated by the primary morphological feature that places that species within the family. An element to accomplishing this easily, though, is not to resort to an Entomology text complete with a morphological key. This can be intimidating, frustrating, and certainly not an efficient way of making an identification. There are many wonderful field guides that you will find more useful, not only in terms of museum pest identification, but also for identification of the innocuous invaders. By being able to concentrate on those target species, you will be able to spot a pest species easily and efficiently. This is critical in the exhibit situation since the staff who are responsible for an exhibit are going to be the same staff monitoring the exhibit.

That brings us to the third element mentioned in the introduction, the process of monitor-

ing. This can take many forms, and individual needs and time constraints will determine the level of activity. There are indeed many approaches and articles in this area and need not be addressed here. The most important aspect of monitoring is consistency. Whatever level of monitoring is selected, it is critical that a written routine be developed to provide continuity. If you examine cases, do so on at regular intervals. Hopefully, the exhibit will be set up to facilitate this, but frequently will not. Of course, it is ideal to have every artifact against a white background, but in most exhibit situations you will have to adjust to the prevailing conditions. The emphasis in monitoring is on inspection and taking preventative action in the form of adding additional pest barriers or increased housekeeping.

Additionally, monitoring against a time frame will prove to be a valuable predictive tool in your exhibit pest management. If possible, collect your observations for data entry at a later time. Although this can involve a significant time commitment, it can really add to your overall efforts to protect exhibit items on display for long periods. For instance, the emergence of the adult form of *Anthrenus verbasci* can be reliably predicted at the MARS facility. Consequently, proactive decisions can be made. Cabinets are not opened during that period unless it is absolutely necessary. This type of action will help minimize the risk of adults laying their eggs directly on attractive materials. Perhaps cleaning the exhibits can be avoided or minimized during the emergent cycle at your locale. This may not make a large difference overall, but small actions add up and potentially protect collections in the long run.

The final point—related to monitoring—is perhaps one of the most neglected. Many times

staff at sites are under considerable time constraints with many other assigned duties. It is very easy to fall behind on inspection when other concerns take precedence.

One solution is creating a list of those items on exhibit that are made or composed of materials that are most prone to insect attack. These are the items that absolutely should be checked habitually for indications of infestations. Clearly, there are types of collections that require more frequent inspection than others. Natural History collections are extremely vulnerable and by the time an infestation is detected, it is entirely too late. Other artifacts may be of materials particularly attractive to specific pest species common in your area. Thus, being aware of the material types within your exhibit will enable you to make a special effort toward those items when time is at a premium. This is not to say replace regular inspection with a shortened version, but to have an available abbreviated item list when circumstances prevent the full routine. Alternative procedures will add to the protection of the collection by providing options when the situation dictates otherwise.

Alternatives are the key to pest management and following procedures developed at some other site could be a mistake. Your exhibit is unique, and therefore deserves its own specialized plan developed by the people who know it best. Integrated Pest Management is not some mysterious science; it is straightforward and will over time be instrumental in preserving your exhibit items.

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## *Exhibiting Color Copies*

There is an increasing need to exhibit museum documents within visitor centers that don't have an HVAC system, security system, museum integrated pest management plan, and ultra violet light protection. After experimenting with different copying machines, we discovered that the Canon CJ10 color copier works the best.

We experimented using uv film to protect the document on the copier. Most black and white copiers have cloth bottoms under the lid that it can tear the document when it is placed on the glass for copying. The color copier has a plastic bottom on the lid. The plastic lid has a solid, smooth surface so that it will not tear the document when it is placed on the glass for copying.

Recently, we were asked to find some documents for a new visitor center in Williamsport, Maryland. We found that the copies looked so realistic, even the stains from the original were showing up.

Even the park rangers thought the copies were original documents, until they were told that they were only color photocopies.

Placing color copies of original documents on exhibit does not require the day-to-day care of exhibiting a rare piece.

It is also a good idea to obtain a rubber stamp that marks it as a reproduction.

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